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ABSTRACT

This presentation reports the results of a statewide assessment of the technology needs of 529 Arkansas professionals working with persons having disabilities, in all age groups and across various disability categories. The assessment gathered information about the respondents' needs for information on assistive technology services and devices, training needs, perceptions of consumer purchasing needs, use of volunteers, agencies/mechanisms providing services, priorities for a state plan, and team participation. Examination of the survey data led to the conclusion that professionals favored a centralized service delivery model, as respondents rated the two highest priorities for state technology planning as early identification of persons with disabilities and provision of ongoing evaluation of needs. Implications of the survey are discussed in the context of innovative curricula for educating people about technology and services for persons with disabilities and their families. The consumer-driven process of curriculum development is described, and overviews are provided of curricula for parents, consumers, professional inservice, and college/university preservice education. (Includes 36 references.) (JDD)

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Professionals Working with People with Disabilities: Technology Training Implications for Teacher Educators

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Professionals Working with People with Disabilities: Needs for Technology Training and Implications for Teacher Training

Introduction

In recent years it has become increasingly recognized that *all* individuals in our society can benefit from technology (Hansen & Perlman, 1989; Office of Technology Assessment, 1982; Parette, 1991). Not only does technology provide important tools facilitating the performance of tasks, but, for many persons in our society such as individuals with disabilities, technology is a necessity that facilitates interactions within the mainstream of everyday life (Governor's Task Force on Technology and Disabilities, 1987; Issue Team on Technology for People with Disabilities, 1986). It is indisputable that with the increased independence evolving from the utilization of available technology, benefits via reduced costs to society, to the individuals with disabilities, and to the families necessarily ensue (Cavalier, 1988; Pfrommer, 1984; Vanderheiden & Dolan, 1985).

Assistive technology is increasingly being used in educational settings for children with disabilities. Assistive technology is "any item, piece of equipment, or product system, whether acquired commercially, off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" [Public Law 100-407, 29 U.S.C. 2202, §3(1)]. This includes the whole range of devices designed to enable people to be more independent or to achieve a greater level of satisfaction including "low-tech" devices, such as flexible straws and veldro fasteners, and "high tech" devices, such as computerized environmental controls and powered wheelchairs. Other examples of assistive devices for children include positioning and mobility devices, augmentative communication aids, computer applications, adaptive toys and games, and electronic interfaces (Brady, 1988; Garner & Campbell, 1987; Hofmeister

group. As can be seen, approximately 40,000 individuals with disabilities are under the age of 18, and over 82,000 are between the ages of 18 and 44. Interestingly, over 140,000 are between the ages of 45 and 69 with about 67,000 constituting the 70+ age group.

The percentages of persons estimated by the Human Services Research Institute (Agosta et al., 1988) to have major life activity limitations are also shown in Table 1. These various activities were defined differently for each major age group: for children under age 5, it is ordinary play; for children ages 5-17, it is attending school; for persons aged 18-69, it is working or keeping house; and for persons aged 70 and above, it is their capacity for independent living (e.g., ability in self-care areas without the assistance of others). The study findings indicated that 70% of the population have been estimated to have such limitations. Based on these findings, it would appear that a significant number of persons with disabilities in Arkansas have potential needs for technology which could enhance the quality of life for these individuals.

Insert Table 1 about here

A Model Planning Process

In the Spring of 1988, prior to the passage of Public Law 100-407, a cooperative effort to find solutions to problems Akansans with developmental disabilities experience was initiated by seven public, private, and consumer agencies. The resulting project, the Technology Access for Arkansans (TAARK) project was designed to: (a) identify the need and quality of technology provisions in Arkansas; (b) to disseminate information about the appropriate technology and funding; (c) to educate Arkansans about technology and funding; (d) to educate Arkansans about technology and advocacy; (e) to develop a coordinated state plan; and (f) to provide technical assistance to the Governor's Developmental Disabilities Planning Council

(DDPC). The project was funded in part through the DDPC and in part through the University of Arkansas-University Affiliated Program. Soon after this project was funded at the state level, the federal technology legislation was enacted in August of 1988 providing the impetus for bi-level planning activity that included the development of a broad state plan addressing the technology needs of persons with disabilities, and preparing a proposal in response to P.L. 100-407.

The processes involved in this unique planning activity have been described elsewhere (Parette & VanBiervliet, 1990; Parette & VanBiervliet, 1991). What is important, however, is that these processes culminated in a grant award under the federal legislation to establish a comprehensive statewide system of technology-related assistance for persons with disabilities. To a large extent, the development of this grant proposal was contingent upon information obtained from a comprehensive needs assessment of persons with disabilities across the state.

This presentation reports the results of the statewide assessment of the technology needs of professionals working with persons having disabilities of all age groups and across various disability categories in Arkansas. Implications are discussed in the context of innovative technology curricula that have been developed and which are available to professionals for use in service settings.

Method

In January of 1989, invitations to particpate on a Coordinated Planning Committee were extended across the state by the participating members of the TAARK project. Responses were obtained from 17 individuals representing a cadre of state, private, and consumer organizations in Arkansas who convened and discussed components of Public Law 100-407. Given that little information appeared to exist relating to the technology needs of persons with disabilities, a decision was made by the Coordinated Planning Committee to conduct surveys of both consumer and professional audiences in the state to gain information for planning efforts. A

Consumer Needs Study Group was organized to draft documents designed to assess the technology-related needs of persons with disabilities, as well as to identify needs for training among professionals involved in service provision to persons with disabilities. The resulting instruments were subjected to a series of reviews and modifications by the entire Coordinated Planning Committee which, by May of 1989, had grown to a constituency of 48 individuals including persons with disabilities, family members, vendors of technology, and representatives of 25 different public and private organizations (Parette & VanBiervliet, 1990).

Professional survey. Each participating group of the TAARK Coordinated Planning Committee was requested to provide a mailing list of professionals involved in service delivery to persons with disabilities in their respective agency. In some instances, contacts were made with agencies/groups not directly involved in the planning activity, e.g., state occupational therapy, physical therapy, social work organizations, and copies of mailing labels secured. This process resulted in the names and addresses of 2,200 professionals across the state being identified for use in the survey from a cadre of agencies and organizations. Since the TAARK project was cooperating with the Arkansas Highway and Transportation Department (AHTD) in its 5-year planning activities, surveys were also sent to all recipients of transportation funds received from the AHTD.

A draft version of the Survey of Professionals instrument was prepared by the Consumer Needs Study Group and, as with the Consumer Survey, was reviewed and modified on numerous occasions by the entire Planning Committee. The final version was printed and mailed in mid-April of 1989. Return envelopes were included in each instrument to facilitate return by recipients of the survey.

Professional Survey Results

Demographics. A total of 529 completed professional survey forms were received as of August 10, 1989, reflecting a return rate approximately 24%.

Responses were received from professionals who worked with individuals representing all age ranges and disability categories. Age groups which were reported being served by the respondents included infants (21%), preschoolers (32%), school-age children (54%), transition age (16-21) individuals (41%), adults aged 22-59 (51%), and adults aged 60 and above (34%) (see Figure 1). Disability groups which

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Insert Figure 1 about here

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were served by the professional respondents included the following categories: speech impairments (66%), mental retardation (66%), hearing impairments (60%), learning disabilities (58%), visual impairments (53%), orthopedic impairments (52%), multidisabilities (50%), behavior disorders (46%), cardiac/coronary impairments (32%), respiratory impairments (32%), and other disabilities (14%)(see Figure 2). Responses were also received from professionals who worked in all regions of the state. Professionals representing the following disciplines submitted responses:

Insert Figure 2 about here

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administrators (35%); counselors (21%); educators (16%); therapists (15%); advocates (9%); vocational personnel (4%); group home/ residential workers (2%); physicians/nurses (<1%); and other (12%)(see Figure 3). Some of these respondents reported dual roles of service provision to persons having disabilities.

Insert Figure 3 about here

Need for information. The need for information on services and devices that was reflected in the survey is reflected in Table 2. As can be seen, additional

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Insert Table 2 about here

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information in all areas of technology and related services was reported. Client usage of technology services were reported by professionals in all identified areas. The five major areas in which technology information needs were reported by the professional respondents included: *work site modifications , computers, aids for the visually impaired, assistive listening devices,* and *recreation.*

Training needs. Approximately 68% of the respondents reported that they received insufficient training in college regarding technology and its applications with persons with disabilities. Table 3 reports the areas of deficiency identified by

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Insert Table 3 about here

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the respondents. The following training topics were ranked as greatest need by the respondents: *matching needs of persons with disabilities to technology, conducting assessments and evaluations, how technology can increase vocational options, legislation and funding, computers,* and *clinical/practicum experiences.* When asked about the preferred mechanism for receiving training regarding technology and technology-related assistance, a majority of professionals reported preferences for *inservice training* (60%), and *local workshops/conferences* (55%). Less preferred strategies included *regional workshops/ conferences* (33%), *state workshops/conferences* (33%), *videotapes* (31%), *newsletters* (18%), *coursework* (11%), and *telecourses* (6%).

Perceptions of consumer purchasing needs. In order to determine how professionals perceived the needs of consumers with regard to purchasing needed technology/services, they were asked whether or not their clients would benefit from a "buy-on-time" or credit plan. Most respondents (59%) reported that clients would benefit from such an option (see Figure 4).

Insert Figure 4 about here

Use of volunteers. Given that the use of volunteers is one widely accepted form of service delivery in various systems of the helping professions, professional survey participants were asked if they felt that volunteers trained in the use of technology/services for persons with disabilities would be useful. Most respondents (76%) did not feel that trained volunteers would be useful, though 24% of the participants reported in the affirmative to this question (see Figure 5).

Insert Figure 5 about here

Agencies/mechanisms providing services. The professional survey respondents identified a cadre of agencies and mechanisms which provided technology funding to their clients. The primary sources of services, support, and aid identified were *Medicaid* (57%), *public schools* (46%), *DHS Division of Developmental Disabilities Services* (46%), *Arkansas Children's Hospital* (43%), *DHS Division of Rehabilitation Services* (42%), *Medicare* (36%), and *private insurance* (34%)(see Figure 6).

Insert Figure 6 about here

Priorities for a state plan. The principle purpose for conducting the survey of professionals as well as that of consumers was to gain information that would assist in the development of a comprehensive state technology plan. Table 4 reports ratings by professional survey respondents relative to activities that were deemed to

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Insert Table 4 about here

be of importance in a state technology plan. Interestingly, of those activities perceived to be *very important, early identification of persons with disabilities* was

viewed by the majority of the respondents as being a priority. This was followed by *provision for the ongoing evaluation of needs; identification and coordination of policies, resources, and services; provision and payment for technology and services;* and *dissemination of information to the public on assistance and sources of funding.* The only activity not rated as being very important by at least 50% of the survey respondents was the development of *locally governed organizations to provide technology-related services.*

Team participation. Each of the professional respondents was asked to report whether they participated on a team with other professionals to providing technology to persons with disabilities (see Figure 7). The sample was divided in this respect, with 46% responding that they did participate in such team processes

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Insert Figure 7 about here

while the majority (54%) indicated that they did not participate on a team. When asked to identify the types of persons needed to participate on a team, some clear patterns emerged with regard to the relative importance of certain types of professionals. Some professionals which were consistently identified by a large proportion of the respondents included speech therapists (40%), psychologists or psychological examiners (39%), occupational therapists (38%), counselors/case managers (37%), parents (37%), and physical therapists (35%). Other types of persons viewed as being needed on a team when providing technology to persons with disabilities included physicians and nurses (33%), rehabilitation counselors (30%), educators (30%), audiologists (24%), and administrators (26%). Advocates and engineers/technicians were seen as being least important with 21% of the respondents respectively identifying these two types of team members (see Figure 8).

Insert Figure 8 about here

Discussion

Examination of the survey data reported by professionals reflects a centralized service delivery model orientation. Respondents rated *early identification of persons with disabilities* and *providing ongoing evaluation of needs* as the two highest priorities for state technology planning, activities which have historically been a primary activity of service agencies at the state level. However, it is argued that often these types of activities do not equate with service implementation for people who need the services (Cohen, 1989). The lowest priority rated by the professional respondents in the study was *locally governed organizations to provide technology-related services.* Again, this emphasis toward centralization of services is indicated by the lack of emphasis placed upon a decentralized service model.

It is also interesting to note that professionals deemed advocates and engineers to be less important in team processes affecting technology service provision. It may be for this sample that the role of advocates is yet to be fully recognized, or appreciated in light of their adversarial nature which is sometimes perceived by professionals in service delivery systems. Rehabilitation engineers are recognized in the field of technology service provision as being tremendous resources in the design and implementation of innovative technology programming. However, given the short supply of these rehabilitation engineers in most service systems, their roles may not be totally understood or recognized by professionals.

Development of Technology Curricula

An approach to facilitating systems changes which has been taken in Arkansas, one of the first nine states to receive funding under P.L. 100-407, has been the development and dissemination of a series of technology curricula. These curricula were the first of what may become popular strategies for educating people

about technology and services that are important for persons with disabilties and their families. Following is a description of the development process for the curricula, along with an overview of the content which was ultimately incorporated into them.

A Consumer-Driven Process of Curricula Development

One of the goals of the TAARK project discussed previously was to educate Arkansans about technology and services through the development of a series of curricula and related publications. These curricula targeted professionals, parents, persons with disabilities, and college and university students. In order to identify the core content areas for the curricula, the developers relied heavily on information obtained from several sources: (a) consumer forums which were held around the state; (b) examination of existing literature and agency state plans; and (c) extensive consumer and professional surveys (VanBiervliet & Parette, 1990).

The surveys represented a unique approach for obtaining information necessary for state planning activities among the first states to receive funding under P. L. 100-407 (RESNA, 1989). The design of the surveys involved an examination of technology use patterns and needs for training, services, and information (Parette & VanBiervliet, in press; VanBiervliet & Parette, in press). The participation of many state agencies and private organizations in providing mailing lists of consumers and professionals contributed to the success of the surveys.

Examination of the survey information for the professionals and consumers indicated a number of important findings that provided direction for organizing the curricula content. For example, many persons reported little or no use of existing funding mechanisms that can provide assistive technology to school-age students. Similarly, most people indicated needs for transportation (an important technology service), the opportunity to have hands-on experiences with technology prior to

payment, and the need for information about technology and services that were available in the state. These and other findings were categorized along three specific dimensions of curricula content (i.e., service delivery, funding, and advocacy), which became the basis for the core content for each of the curricula and supplementary publications which have been disseminated.

Overview of Curricula

Parent and consumer curricula. These two curricula were organized in a format lending itself to presentation by an instructor or leader working with both small or large groups of parents (Parette & VanBiervliet, 1990c) and persons with disabilities (Parette & VanBiervliet, 1990b). The information may be presented in one continous training presentation, or it may be broken up and used across a number of training sessions. Each of the three major sections (service delivery, funding, and advocacy) of these curricula is preceded by a listing of objectives for the information base that follows. The information base corresponds sequentially with each of the listed objectives. Transparency and handout masters are included at the back of the curricula for reproduction, and these materials are indicated in the text at points where it would be helpful to use such resources to supplement the presentation of information by the group leader. These include high quality graphic illustrations, vignettes, and other text materials summarizing orally presented information. Suggested group activities are recommended at the end of each section, along with appropriate responses that might be anticipated from the participants.

Professional Inservice and College/University Preservice curricula. Though not differing substantially in content from the previously described curricula, these were developed specifically for use in self-pacing or individualized training settings-formats which lend themselves to inservice (Parette & VanBiervliet, 1990f) and preservice audiences (Parette & VanBiervliet, 1990e). Persons using the curricula

are given specific instructions for completing the curricula, and are allowed to proceeed at their own pace or as specified by an instructor. Information is presented in the same manner as in the parent and consumer curricula, but rather than presenting activities for the student or professional to engage in after completing a particular section, a test is presented. The test consists of approximately 10 questions which address the material that has been read by the student or professional. An Instructor's Supplement was developed to provide a teacher or supervisor with samples of appropriate responses to the questions. These curricula, as with the others which were developed, can be used in one or several instructional sessions.

Supplementary Publications

Several Guides have also been developed for use with the curricula. One focuses on technology issues relating to young children with disabilities (Parette, VanBiervliet, & Rock, 1990), while the other addresses issues of interest to parents and school-age children with disabilities (Parette & VanBiervliet, 1990b). These Guides are designed using a question and answer format relating to technology issues in the areas of technology service issues (including the school's role), selecting technology, funding, parent and child rights, and advocacy. A sample of the format for these questions is presented in Figure 9. Several helping sections, including checklists and agencies/organization that can be contacted are also included.

Insert Figure 9 about here

Future Implications

Considerable interest has been expressed in the use of curricula to facilitate changes in the information base of professionals and children with disabilities. Recently, these curricula were described in *The Many Faces of Funding*, (Hofmann, 1982), a nationally disseminated newsletter published by Phonic Ear, Inc. Initial

reports from the field that have been shared with the curricula developers suggest that this is a valued approach to getting information to a variety of audiences, and that the curricula are well designed and appreciated by those using them. Specific information regarding the curricula and guides is available on request by writing the Center for Research on Teaching and Learning, University of Arkansas at Little Rock, 2801 South University, Little Rock, AR 72204 (see Figure 10). The Council for

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Insert Figure 10 about here

Exceptional Children's Center for Special Education Technology (Raimondi, Lahm, & Meidenbauer, 1990) has also published a technology curriculum outline for use around the country. This curriculum provided an alternative approach to technology-specific training, with the student being the focus of the training. The emphasis of these materials is on accessing, selecting, and incorporating technology aids into individual instructional programs. This outline, coupled with the Arkansas curricula, represent complementary models that are now available for other states to use in their efforts to educate people about technology.

A major concern expressed by some who might consider using this approach to educating others is the cost of printing documents and disseminating them. The experience in Arkansas has demonstrated that state agencies are interested in helping with reproducing documents and getting them into the hands of potential users. The Arkansas State Department of Education, for example, has reprinted copies of the professional inservice curriculum and sent them to all special education supervisors in the state. Several state organizations have provided a mechanism for distributing curricula and guides at professional meetings, and have allowed time on the programs at these meetings for explanations of the curricula and their usage with different target audiences. The University of Arkansas-University Affiliated Program consented to underwrite the

cost of producing a substantial number of guides for statewide distribution. Also, all documents have all been placed on the ERIC database for retrieval. These and other efforts reflect a genuine interest in the technology curricula approach to providing information and suggest that other states should give careful thought to incorporating such approaches in their own technology service delivery systems.

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Table 1

Estimated Number of Persons With Disabilities by Type of Disability: All Chronic Activity Limitations, and Percentages of Persons With Limited Activity or Inability to Perform Major Life Activities[a], and Unable to Perform Major Activities[b]

Main Causes of Limitation	All Ages			Under 18			18 - 44			45 - 69			70+		
Categorical Disabilities:	n	%[a]	%[b]	n	%[a]	%[b]	n	%[a]	%[b]	n	%[a]	%[b]	n	%[a]	%[b]
Mental Retardation	31,127	(.74)	(.37)	13,928	(.48)	(.30)	13,426	(.94)	(.42)	3,462	(.94)	(.42)	311	(.95)	(.04)
Autism	452	(.67)	(.32)	174	(.88)	(.32)	204	(.53)	(.32)	69	(.54)	(.32)	5	(.06)	(.04)
Cerebral Palsy	1,906	(.55)	(.38)	966	(.54)	(.38)	718	(.56)	(.38)	195	(.55)	(.38)	26	(.58)	(.38)
Epilepsy	3,642	(.41)	(.20)	719	(.65)	(.38)	2,005	(.35)	(.15)	741	(.35)	(.15)	177	(.36)	(.15)
Other Disabilities:															
Brain Injured	2,215	(100)	(.30)	567	(100)	(.30)	1,239	(100)	(.30)	368	(100)	(.30	40	(100)	(.30)
Spina Bifida	359	(.81)	(.43)	163	(.81)	(.43)	143	(.81)	(.43)	39	(.82)	(.43)	14	(.86)	(.43)
Paralysis	3,686	(.81)	(.43)	256	(.81)	(.43)	1,080	(.81)	(.43)	1,669	(.81)	(.43)	682	(.81)	(.43)
Orthopedic Impairments	54,615	(.66)	(.21)	2,959	(.66)	(.21)	23,248	(.66)	(.21)	21,285	(.66)	(.21)	7,123	(.66)	(.21)
Absence of Limbs	3,875	(.80)	(.42)	197	(.80)	(.42)	946	(.80)	(.42)	1,713	(.80)	(.42)	1,019	(.80)	(.42)
Skin & Musculoskeletal	68,259	(.70)	(.27)	892	(.70)	(.27)	11,584	(.70)	(.27)	36,687	(.70)	(.27)	19,106	(.70)	(.27)
Blind	2,102	(.64)	(.20)	117	(.64)	(.20)	353	(.64)	(.20)	661	(.64)	(.20)	971	(.64)	(.20)
Deaf	1,575	(.64)	(.20)	325	(.64)	(.20)	486	(.64)	(.20)	415	(.64)	(.20)	348	(.64)	(.20)
Digestive Disorders	9,673	(.68)	(.26)	418	(.68)	(.26)	2,193	(.68)	(.26)	5,061	(.68)	(.26)	2,002	(.68)	(.26)
Circulator Disorders	71,864	(.72)	(.35)	1,173	(.72)	(.35)	5,802	(.72)	(.35)	41,399	(.72)	(.35)	23,491	(.72)	(.35)
Respiratory Disorders	33,427	(.70)	(.31)	8,190	(.70)	(.31)	7,391	(.70)	(.31)	11,996	(.70)	(.31)	5,851	(.70)	(.31)
Mental Illness	11,128	(.87)	(.43)	3,776	(.87)	(.43)	3,607	(.87)	(.43)	3,064	(.87)	(.43)	680	(.87)	(.43)
Other Nervous Disorders	7,399	(.77)	(.38)	662	(.77)	(.38)	2,058	(.77)	(.38)	3,112	(.77)	(.38)	1,567	(.77)	(.38)
Other Conditions	23,955	(.73)	(.33)	4,649	(.73)	(.33)	6,380	(.73)	(.33)	9,072	(.73)	(.33)	3,854	(.73)	(.33)
TOTAL	331,259			40,131			82,863			141,008			67,267		

[a]The percentage of persons in the age and disability category having limited ability or inability to perform major life activities.

[b]The percentage of persons in the age and disability category unable to perform major activities.

Source: Arkansas Legislative Sub-Committee on Definition and Agency Responsibility for the Developmentally Disabled and the Arkansas Governor's Developmental Disabilities Planning Council (1988). *An examination of the impact of adopting the federal definition of developmental disabilities in Arkansas.* Cambridge: Human Services Research Institute.

Table 2

Categories of Technology Services Used/Needed by Clients of Professional Survey Respondents and Areas of Need for More Information Reported by Professionals (n = 529)

Technology Service Area	n of Professionals Indicating Client Usage or Need (%)*	n of Professionals Needing More Information (%)*
Self-Help	251 (.80)	62 (.20)
Work Site Modifications	170 (.59)	120 (.41)
Mobility	332 (.86)	56 (.14)
Electric/Power Wheelchair & Carts	214 (.75)	70 (.25)
Telephone Usage	196 (.69)	87 (.31)
Recreation	198 (.65)	105 (.35)
Assistive Listening Devices	185 (.63)	109 (.37)
Building Accessibility	232 (.80)	58 (.20)
Specialized Cars, Vans, & Buses	265 (.79)	72 (.21)
Home Management	193 (.71)	80 (.29)
Classroom Adaptations	213 (.69)	94 (.31)
Specialized Seating	225 (.75)	77 (.25)
Communication Aids	228 (.69)	105 (.31)
Reading, Writing, & Typing	203 (.71)	84 (.29)
Aids for the Visually-Impaired	153 (.61)	98 (.39)
Computers	220 (.61)	139 (.39)
Artificial Limbs, Prosthesis & Orthotics	145 (.73)	55 (.27)

*Reflects percentages of respondents in each Technology Service Area (Column 1)

Table 3

Area of College Preparation Deficiency Reported by Professional Survey Respondents (n = 529)

Area of Deficiency	n of Respondents	(%)*
Legislation which affects funding/reimbursement patterns for technology needs of persons with disabilities	175	(.33)
How technology can increase vocational options	185	(.35)
Matching needs of persons with disabilities to technology	241	(.46)
Conducting assessment and evaluations	191	(.36)
Clinical/practicum experiences	147	(.28)
Effectively working with other professionals in a team arrangement	85	(.16)
Self-help	132	(.25)
School	94	(.18)
Mobility	97	(.18)
Communication	141	(.27)
Recreation	74	(.14)
Aids for the visually-impaired	72	(.14)
Computers	171	(.32)
Artificial limbs, prostheses, & orthotics	79	(.15)
Home management	102	(.19)
Work & work-training	130	(.25)
Specialized seating	60	(.11)
Telephone usage	60	(.11)
Reading, writing, & typing	88	(.17)
Building accessibility	72	(.14)
Specialized cars, vans & buses	63	(.12)
Assistive listening devices	77	(.15)

* Reflects percentage of total respondent class (n = 529)

Table 4

Ratings by Professional Survey Respondents of Priotities to be Established in State Technology System

Activity	RATING: Very Important *n* (%)*	Somewhat Important *n* (%)*	Not Important *n* (%)*
Early identification of persons with disabilities	398 (.95)	18 (.04)	4 (.01)
Providing ongoing evaluation of needs	313 (.75)	103 (.24)	2 (.01)
Identification and coordination of policies, resources, and services	306 (.73)	107 (.26)	4 (.01)
Provision and payment for technology and services	306 (.73)	105 (.25)	7 (.02)
Dissemination of information to the public on assistance and sources of funding	249 (.60)	154 (.37)	11 (.03)
Creating a public awareness program on the effectiveness and availability of technology-related devices and services	234 (.56)	172 (.41)	10 (.03)
Locally governed organizations to provide technology-related services	185 (.45)	190 (.46)	37 (.09)
Establishment or continuation of partnerships and cooperative initiatives between the public and private sectors	225 (.55)	174 (.42)	14 (.03)
Development of qualifications or standards to ensure that qualified persons are providing technology services	246 (.60)	151 (.37)	15 (.03)
Establishment of procedures providing for the active involvement of persons with disabilities, their families, and other interested persons in the implementaiton of a statewide program	248 (.60)	150 (.37)	13 (.03)

* Reflects percentage of respondents to an Activity item (Column 1)

Figure 1. Age Groups of Persons with Disabilities Reported Being Served by Professionals

Age Group	Percentage
Infants (0-2)	.21
Preschoolers (3-5)	.32
School-age (6-21)	.54
Transition age (16-21)	.41
Adults (22-59)	.51
Adults (60+)	.34

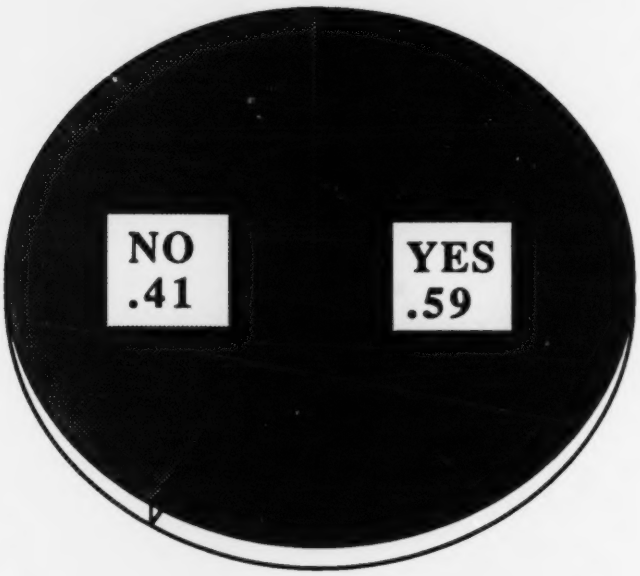
Figure 2. Disability Groups Served by Professionals

Disability Group	Percentage
Speech impairments	.66
Mental retardation	.66
Hearing impairments	.60
Visual impairments	.53
Orthopedic impairments	.52
Multidisabilities	.50
Behavior disorders	.46
Cardiac/coronary	.32
Respiratory impairments	.52
Other	.14

Figure 3. Disciplines Represented by Professionals

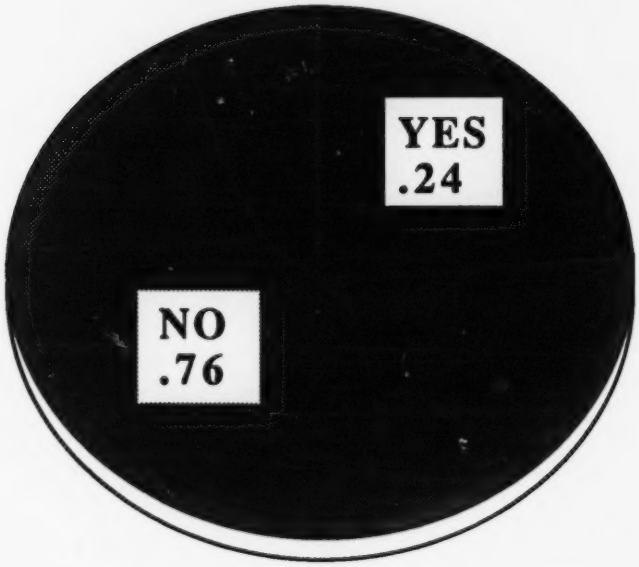
Discipline	Percentage
Administrators	.35
Counselors	.21
Educators	.16
Therapists	.15
Advocates	.09
Vocational personnel	.04
Group home/residential	.02
Physicians/nurses	<.01
Other	.12

Figure 4. Professional Perceptions of Consumer Purchasing Needs.



Would your clients benefit from a "buy on time"or credit plan?

Figure 5. Professional Reports of Volunteer Usage.

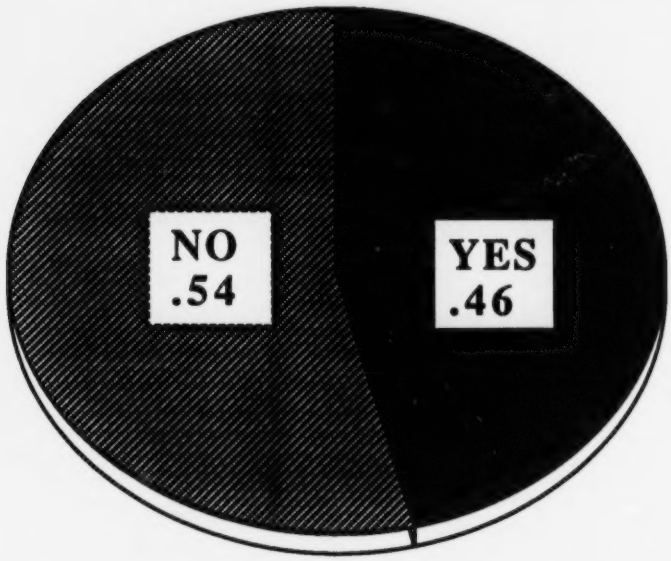


Do you use volunteers trained in the use of technology/services?

Figure 6. Agencies/Mechanisms Providing Technology Funding/Services to Clients.

Agency/Mechanism	Percentage
Medicaid	.57
Public Schools	.46
DHS, DDS	.46
Ark. Children's Hospital	.43
DHS, DRS	.42
Medicare	.36
Private Insurance	.34

Figure 7. Professional Reports of Team Participation.



Do you currently participate on a team with other professionals in providing technology to persons with disabilities?

Figure 8. Professional Reports of Critical Team Composition.

Team Member	Percentage
Speech Therapist	.46
Psychologist/Examiner	.46
Occupational Therapist	.45
Counselor/Case Manager	.43
Parents	.43
Physical Therapist	.42
Physicians/Nurses	.38
Rehabilitation Counselors	.35
Educators	.35
Audiologists	.30
Administrators	.29
Advocates	.21
Rehabilitation Engineers	.21

Figure 9. Excerpt from Supplementary Guide.

"Who can help pay for technology?"

In cases where the student does not need to receive special education services, but needs a special device, other choices for paying for the technology with the school system have to be considered. Civic clubs, churches, businesses, and other groups are all possible places to get help with paying for technology. Also, parents might think about working with a third party, such as an insurance company, or private agency to get money to buy the technology. Many insurance companies will pay for certain types of devices needed by persons who are covered under the policies. Private agencies and organizations such as the Association for Hearing Impaired Children and the Spina Bifida Association may also be able to assist families in buying needed technology.

One state agency which has been very helpful in getting technology for students less than 18 years of age is Children's Medical Services. This agency is designed for families that would be unable to pay for expensive technologies and services needed by children who are very ill or who have physical disabilities. A major funding source that CMS uses to pay for technology is the Medicaid program. If parents wish to apply for Medicaid, or get information about the program, this may be done at the County Human Services Office where the parents live.

A program which is currently being used by CMS and parents across the state to get technology for students who do not qualify for Medicaid is the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). This program is for people who are not able to get help under SSI. TEFRA is a very important program which parents can use to get needed technology for their children (see *Funding Sources*, pp. 30-37 for more information about TEFRA and other funding sources).

From: Parette, H. P., Jr., & VanBiervliet, A. (1990). *Assistive technology and disabilities...A guide for parents and students.* Little Rock, AR: University of Arkansas at Little Rock.

Figure 10. Overview of Technology Curricula.

CURRICULA:

Assistive Technology Curriculum for Arkansans with Disabilities

Focuses on advocacy, service delivery, and funding concepts. Contains transparency and handout masters for training purposes. Supplementary resource materials are also contained.

Assistive Technology Curriculum for Parents of Arkansans with Disabilities

Focuses on advocacy, service delivery, and funding concepts. Contains transparenc and handout masters for training purposes. Supplementary resource materials are also contained.

Assistive Technology Curriculum ... A Module of Instruction for Students in Arkansas Colleges and Universities

Designed as a 1 1/2 -3 -hour module of instruction in higher education settings. An Instructor's Supplement is also available which provides acceptable responses to student evaluation questions in the module.

Assistive Technology Curriculum ... A Module of Inservice for Professionals

Designed as a 1 1/2 -3 -hour module of inservice for use in professional settings. An Instructor's Supplement is also available which provides acceptable responses to participant evaluation questions in the module.

SUPPLEMENTARY GUIDES:

Assistive Technology Guide for Young Children with Disabilities

Designed in a simple question and answer format addressing service considerations, selection of technology, funding, parent and child rights, and advocacy. Funding sources, other advocacy contacts, and checklists pertaining to technology are also included.

Assistive Technology and Disabilities... A Guide for Parents and Students

Designed in a simple question and answer format addressing the role of the schools in technology service delivery, selection of technology, funding, parent and student rights, and advocacy. Funding sources, other advocacy contacts, and parent checklists pertaining to technology are also included.

Note: For information regarding these materials and how they may be obtained, teachers may write: Assistive Technology Curricula, Center for Research on Teaching and Learning, University of Arkansas at Little Rock, 2801 South University, Little Rock, AR 72204, (501) 569-3423